

STRENGTHENING THE MEDICOLEGAL DEATH INVESTIGATION SYSTEM: IMPROVING DATA SYSTEMS

Executive Office of the President
National Science and Technology Council

DRAFT FOR PUBLIC COMMENT



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About the Fast-Track Action Committee on Strengthening the Medicolegal Death Investigation System

The Co-chairs of the Committee on Science chartered the Fast-Track Action Committee on Strengthening the Medicolegal Death Investigation System (FTAC-SMDIS). The FTAC-SMDIS identified and recommended strategic program and policy measures that can be implemented by Federal agencies in coordination with State, local, and Tribal entities in order to improve the quality, uniformity, and availability of MDIS data, and could strengthen the MDI and the medical examiner and coroner system of the United States. Further, these measures would maximize the utility of MDIS data for Federal purposes.

About this Document

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COMMITTEE ON SCIENCE

FAST-TRACK ACTION COMMITTEE ON STRENGTHENING THE
MEDICOLEGAL DEATH INVESTIGATION SYSTEM

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Executive Summary

The nation's approximately 2,400 medical examiner and coroner (ME/C) jurisdictions investigate nearly 500,000 deaths each year and perform post-mortem examinations and/or autopsies to determine the cause of death. While the function and organization of these offices vary by state, medical examiners and coroners typically investigate deaths that are sudden and unexpected, deaths that have no attending physician, and all suspicious and violent deaths. Strengthening the ME/C system is critical for improving the accuracy and reliability of these death investigations and will benefit public health and safety programs, law enforcement investigations, and the development of interventions to prevent deaths nationwide.

The National Science and Technology Council's Fast Track Action Committee on Strengthening the Medicolegal Death Investigation System (FTAC-SMDIS) was chartered in July 2015 to make strategic policy recommendations at the Federal level on how to address issues related to accessing and working with data generated by ME/C offices. Importantly, these policy recommendations will not only strengthen medicolegal death investigations, but would also enhance public health and the integrity of the criminal justice system, and further public health and medical research.

Introduction

Each year, approximately 2.6 million people die in the United States.¹ Thirty to forty percent (approximately 1 million) of these deaths are referred to medical examiner or coroner (ME/C) offices.² The Nation's approximately 2,400 ME/C jurisdictions accept about half of these requests (500,000), investigating these deaths in coordination with Federal, State, or local investigators and performing post-mortem examinations and/or autopsies to determine the cause and manner of death.³ ME/C office function and organization vary by state, but generally ME/Cs investigate deaths that are sudden and unexpected, deaths in which there is no attending physician, deaths that are unusual, deaths due to suspicious circumstances, or violent deaths. These may include homicides, suicides, and deaths that occur as a result of accidents, as well as unexpected deaths that are from natural causes.

ME/C offices serve a fundamental role in ensuring justice by contributing to the investigation of violent deaths. They also play a crucial role in support of global health security⁴ by protecting public

¹ CDC WONDER Online Database, *Multiple Cause of Death 2013-2014*, Accessed December 21, 2015. (Available online at: <http://wonder.cdc.gov/mcd-icd10.html>).

² National Research Council of the National Academies, *Strengthening Forensic Science in the United States: A Path Forward*. The National Academies Press: 2009, p. 244. (Available online at: http://www.nap.edu/download.php?record_id=12589)

³ Hickman M.J. and Strom, K.J. *Census of Medical Examiners and Coroners' Offices, 2004* Bureau of Justice Statistics, 2007. (Available online at: <http://www.bjs.gov/content/pub/pdf/meco04.pdf>)

⁴ See, *The Global Health Security Agenda*, <http://www.globalhealth.gov/global-health-topics/global-health-security/ghsagenda.html>

health and safety and combating emerging threats, as well as serving the public good by providing a decedent's family members information about the cause of death. Data reported from the medicolegal death investigation (MDI) system, which encompasses but is not limited to ME/C offices,⁵ can inform the development of interventions to prevent deaths by understanding the cause and circumstances of disease, injury, and death. The potential impact of these data has been recently exemplified in the Nation's efforts to confront and curtail the use of illicit drugs and the non-medical use of prescription drugs. These data can be used to evaluate current prevention programs and regulation, and can be shared to promote consistency and quality of death investigation within and between ME/C offices. Strengthening the ME/C system is critical for improving the accuracy and reliability of death investigations and will benefit public health and safety programs and the development of interventions to prevent deaths.

Many Federal agencies rely on the data generated by the MDI system to further their missions, and therefore share an interest in ensuring that these data are accurate, reliable, and readily accessible. For example,

- Centers for Disease Control and Prevention use MDI data to monitor trends in unintentional injury, homicides, suicides, and sudden unexpected infant deaths;
- Food and Drug Administration uses MDI data to conduct post-market surveillance of prescription drugs;
- Office of National Drug Control Policy relies on MDI data to monitor illicit drug use, including the non-medical use of prescription drugs, and its consequences;
- National Highway Traffic Safety Administration monitors trends in traffic-related fatalities through MDI data;
- Federal Aviation Administration utilizes MDI reports to identify and mitigate aeromedical hazards in aerospace accidents; and
- Consumer Product Safety Commission uses mortality data to identify problematic products for investigation and potential recall.

Nevertheless, the Federal government's role is limited by the fact that the ME/C offices fall within State and local jurisdictions. The dependence of Federal agencies and the public on the MDI system to provide quality death investigation data reinforces the Federal government's interest in improving the system overall. The Department of Justice provides the only consistent Federal grant funding mechanism to support the MDI system through its Paul Coverdell Forensic Science Improvement Grants Program administered by the National Institute of Justice; however, this funding program is not strictly dedicated to the MDI system, as its formula and competitive components provide funding to improve the quality and timeliness for all forensic science services.

⁵ "The medicolegal death investigation system is responsible for conducting death investigations and certifying the cause and manner of unnatural and unexplained deaths." Committee for the Workshop on the Medicolegal Death Investigation System; Board on Health Promotion and Disease Prevention; Institute of Medicine, Medicolegal Death Investigation System: workshop Summary 2003 (Available online at: <http://www.nap.edu/catalog/10792/medicolegal-death-investigation-system-workshop-summary>).

Background

In July 2015 the Committee on Science under the National Science and Technology Council (NSTC) chartered a Fast-Track Action Committee on Strengthening the Medicolegal Death Investigation System (FTAC-SMDIS). The NSTC Committee on Science tasked the FTAC-SMDIS with examining the data infrastructure, data collection, and reporting practices of the MDI system as well as data quality issues and how Federal agencies could support data accessibility. As a result of this work, the FTAC-SMDIS generated recommendations for strategic program and policy measures that can be implemented by Federal agencies in coordination with State and local agencies and community stakeholders to improve the quality, uniformity, and availability of MDI data, and to strengthen the MDI and the ME/C systems of the United States in order to maximize the utility of MDI data. If implemented, these recommendations will enhance the quality and accessibility of MDI data as well as enhance the infrastructure of the MDI system. Importantly, implementing these recommendations would not only strengthen medicolegal death investigations, but would also enhance public health and safety, improve the integrity of the criminal justice system, and further public health and medical research. Discussions of the FTAC-SMDIS focused on two themes: enhancing death investigation data quality and infrastructure, and increasing capacity within ME/C offices.

Death investigation data quality and infrastructure. Data collected from medicolegal death investigations is critical to monitoring the Nation's health and safety and to conducting sound science in forensic pathology and death investigation. For many National programs, information beyond basic demographics of the decedent and cause and manner of death is needed. Some, but not all, ME/C offices have electronic files that are useful for aiding in routine work at the office and facilitating uniform investigation and reporting. Yet currently there is no unified format or mechanism for State and local officials to provide these data to Federal government data systems. Further, various offices' data systems are often not interoperable, presenting a significant obstacle to the inter-jurisdictional and timely exchange of information that is crucial for decedent identification, fraud prevention, and identity protection. Inter-jurisdictional collaboration is also foundational to conducting forensic science research between and within ME/C offices.

Many Federal data systems use information collected during the course of death investigation by ME/Cs. The largest of the data collection programs is the National Vital Statistics System (NVSS), which includes cause and manner of death, basic demographics of the decedents, and temporal and geographic factors as reported on death certificates filed in the States as part of the death registration process. NVSS, in collaboration with the CDC, has developed a standardized death certificate form and guidelines for reporting that are recommended for nationwide use. Similarly, the National Missing and Unidentified Persons System (NamUs) also provides a centralized reporting and management solution for information about long-term missing person cases and unidentified decedent cases. However, outside of the labor-intensive and specific reporting that informs these systems, MDI data often varies in quality and specificity among States and localities.

Opportunities for standardization exist. Uniform data reporting formats, data element specifications, disease classification systems, and electronic death certificate registration systems would bring clarity and reliability to the MDI system. Consistency in the review of death scenes and in post-mortem examinations (e.g., autopsy and toxicology) is critical for ensuring that death

investigations are sound and that high-quality data are collected for surveillance and research purposes and that high-quality evidence is collected for the criminal justice system, where appropriate. Multidisciplinary collaborations with ME/Cs in the development of death investigation protocols can help to encourage more consistent practice. This need for standard and consistent investigation was an impetus for the National Institute of Justice's publication, *Death Investigation: A Guide for the Scene Investigator* (1999); for CDC's publication of the Sudden Unexplained Infant Death Investigation Reporting Form and Guidelines (SUIDIRF, published in 1996 and revised in 2006); and for the CDC-funded American College of Medical Toxicology and the National Association of Medical Examiners guidelines on opioid death investigation.⁶ While these guidelines have proven beneficial, inconsistent funding of MDI programs and training of MDI personnel has limited their utility for enabling widespread standardization.

Increased capacity within Medical Examiner/Coroner's offices. Practitioners and Federal officials that engage with ME/C offices have noted that many death investigation facilities are antiquated and in need of repair or replacement. A 2011 report from the Scientific Working Group for Medicolegal Death Investigation's Infrastructure Committee stated that 56% percent of facilities at that time were in need of renovation or additional equipment.⁷ ME/C offices also function at varying levels of expertise. The 2009 National Academy of Sciences Report, *Strengthening Forensic Science in the United States: A Path Forward*, noted frequent deficiencies in not only facilities and equipment but in staff, education, and training. In fact, according to the report there is a shortage of forensic pathologists⁸ and death investigators in many areas of the country. This shortage of forensic pathologists and the lack of facilities for forensic autopsy have led to potentially underserved areas of the country. For example, in July 2015 when the only two state forensic medical examiners qualified to assist county coroners in Montana left the practice, the state had to outsource its autopsies to neighboring states on a temporary basis.⁹

More forensic pathologists are needed to provide direct support to ME/C offices, strengthen ties between ME/C offices and medical institutions, and advance research in forensic pathology and other medical post-mortem science. Yet crucial forensic pathology positions have been left vacant, leaving death investigators overworked and overburdened with casework. The rapid increase in the number of deaths involving prescription and illicit drugs is further burdening the ME/C offices as these investigations are time- and labor-intensive, and toxicological tests are costly. In addition to the impact on families of the deceased, this lack of services negatively impacts the quality of the data used to identify potential risk factors and improve understanding of drug involvement in overdose deaths. These challenges impact the timeliness and completeness of data that are critical for addressing National needs in public health and safety, and advancing fundamental research in forensic pathology.

⁶ Davis, G.G and National Association of Medical Examiners and American College of Medical Toxicology Expert Panel on Evaluating and Reporting Opioid Deaths *Complete republication: national association of medical examiners position paper: recommendations for the investigation, diagnosis, and certification of deaths related to opioid drugs*. Journal of Medical Toxicology, 2014, 10(1):100. (Available online at: <http://www.ncbi.nlm.nih.gov/pubmed/24132519>)

⁷ Scientific Working Group for Medicolegal Death Investigation Infrastructure Committee *Medicolegal Autopsy Facilities in the United States*, May 26, 2011. (Available online at: <http://www.swgmdl.org/images/iscomrpt3-facilities2011.pdf>)

⁸ Forensic pathologists are physicians who have completed, at a minimum, four years of medical school and three to four years of medical specialty training in anatomical pathology or anatomical and clinical pathology, followed by an accredited fellowship year in forensic pathology. (See. Ibid, 2. p. 256)

⁹ *Montana autopsies to be outsourced to other states in July*. The Missoulian, June 27, 2015. (Available online at: http://missoulian.com/news/local/montana-autopsies-to-be-outsourced-to-other-states-in-july/article_843ba3af-c48a-5afa-a321-7475251df1af.html)

Recommendations from the FTAC-SMDIS

Through the course of two workshops for subject-matter experts from the Federal agencies, the FTAC-SMDIS members discussed opportunities for the Federal government to help improve the accessibility, timeliness, and quality of death investigation and reporting, and thereby improve the quality and accessibility of MDI data. Acknowledging that further efforts to understand the applicability, potential costs associated with, and challenges in implementation of these recommendations will need to occur in coordination with efforts already underway in the broader stakeholder community, the following recommendations are offered to the Committee on Science for consideration and publication:

Cross-cutting Recommendations

1. Federal agencies should develop a coordinated framework for science and technology investment to advance forensic science capabilities, including forensic pathology, in offices of medical examiners and coroners.
2. The stakeholder community, including the Federal agencies, and State, local, and Tribal entities should foster broader understanding of the value of medicolegal death investigators and MDI data in supporting public health, public safety, and criminal justice.
3. Where appropriate, the Federal, State, local and Tribal entities should publish data on autopsy and toxicological testing rates during medicolegal death investigations to inform stakeholders and monitor trends in death investigation practices.

Recommendations to Enhance the MDI Data Infrastructure and Quality

4. To enhance the quality, timeliness, and accessibility of MDI data, Federal agencies should work with State, local, and Tribal entities to envision and adopt a 21st century electronic data system while strengthening and promoting interoperability among current electronic systems used within the MDI community, including electronic death registration systems.
5. Federal agencies should work together and in coordination with State, local, and Tribal entities to establish the essential MDI data elements and data element specifications to facilitate timely data sharing and statistical reporting, which are critical to informing policy generation, rulemaking, monitoring public health and safety, and evaluating science and technology program investment. Federal agencies and State, local and Tribal entities should examine current uses of MDI data and explore opportunities to inform and further policy and program impact through enhanced data quality and accessibility.
6. The Federal government should work with consensus standards development organizations and MDI stakeholders, including Federal, State, local, and Tribal entities, to foster standards development in support of data quality and accessibility goals.

7. Federal agencies should coordinate with State and local entities to assess current capability needs as well as opportunities to foster consensus standards to support high-quality post-mortem toxicology testing among decedents with possible exposure to drugs, chemicals, and other toxins in the workplace, home, environment, and transportation sector.

Recommendations to Enhance MDI System Capacity

8. The FTAC-SMDIS recommends Federal agencies work within the stakeholder community to foster investments in: education, training, certification, and workforce development initiatives in order to certify medicolegal death investigators and forensic pathologists.
9. The Federal government should encourage the use of technology in rural and remote areas to facilitate distance medicine and forensic science capabilities.
10. Federal agencies should work together, including better utilization of regional Federal resources, to promote sharing of MDI data collected from medical examiner and coroner offices across the country.
11. The Federal government should work with stakeholder organizations to support the formation of a network for medical examiners and coroners to share MDI best practices, lessons-learned, recent relevant rule makings, technical capability enhancements, and data system needs.
12. The Federal government should encourage State and local authorities to provide medicolegal death investigation offices with an official agency or office e-mail address and reliable internet access to be used to facilitate communication and information sharing among one another and other interested public health, safety, and security agencies.